

Evidence-based clinical guidelines for the diagnosis,
assessment and physiotherapy management
of shoulder impingement syndrome

Quick reference guide



Introduction

This quick reference guide summarises the recommendations made in the Evidence based guidelines for the diagnosis, assessment and physiotherapy management of shoulder impingement syndrome (Hanchard et al, 2005). Practitioners are advised to use this quick reference guide as an aide memoir once familiar with the content of the complete guidelines document. The complete guidelines provide information on the guideline development process, a comprehensive discussion of the supporting evidence and detailed information on the recommendations including diagrams of the recommended exercises.

The clinical guidelines ask 'What is best practice in the physiotherapy diagnosis, assessment and management of shoulder impingement syndrome?'

The guidelines are available from the Chartered Society of Physiotherapy and at:

www.csp.org.uk/director/effectivepractice/clinicalguidelines/physiotherapyguidelines.

Scope of the guidelines

The guidelines apply to:

- Shoulder impingement syndrome in adults aged 18 and over, irrespective of gender or race. They may be utilised to inform all stages of the non-operative or pre-operative care pathway from initial diagnosis/assessment, physiotherapy management, evaluation of outcome, patient discharge to self-management, through to referral for orthopaedic opinion (if required).

They specifically do not apply to:

- Pain from causes other than shoulder impingement syndrome
- Impingement in the hemiplegic shoulder
- Peri- or post-operative management
- Alternative therapies (for this purpose, acupuncture is considered an alternative therapy)

Definition of shoulder impingement syndrome

Shoulder impingement syndrome (SIS), or alternatively subacromial impingement syndrome, painful arc syndrome or clinical impingement syndrome results from reduced clearance between the humeral tuberosities and coracoacromial arch during elevation, which pinches the intervening soft tissue structures. The vulnerable soft tissues are, from superficial to deep, the subacromial or subdeltoid bursa, the rotator cuff tendons, and the long head of biceps.

The guidelines also consider two other types of impingement as distinct entities; posterior superior glenoid impingement (PSGI), and superior labrum anterior to posterior (SLAP) lesions.

A number of possible mechanisms underlie SIS, some well documented, others more speculative:

- Bony anatomical and pathological factors
- Shoulder instability
 - rotator cuff weakness
 - capsulo-ligamentous laxity
- Impaired scapulohumeral rhythm and scapular instability
- Capsular tightness
- Postural factors
- Soft tissue changes (inflammation and thickening of the subacromial bursa or rotator cuff).

Levels of evidence and grading of recommendations

In developing the guidelines the guideline development group (GDG) appraised and graded the evidence relating to physiotherapy interventions (CSP, 2003). From this the GDG formulated recommendations graded according to the evidence. The criteria for appraising articles on treatment interventions (such as Guyatt et al, 1993), and the subsequent method for grading evidence and recommendations based upon this appraisal (e.g. CSP, 2003) is not transferable to articles on diagnosis or assessment (Irwig & Glasziou, 1996; Deeks, 2001). Consequently, individual diagnosis- and assessment-related articles were not included in the table of appraisals and therefore levels of evidence or grades of recommendation are not specified for the diagnostic or assessment literature. In developing this quick reference guide only the recommendations have been included. The evidence supporting the recommendations can be found in the complete guidelines document.

Levels of Evidence

(adapted from NICE 2001)

Level	Type of evidence
Ia	Evidence obtained from a systematic review of randomised controlled trials
Ib	Evidence obtained from at least one randomised controlled trial
IIa	Evidence obtained from at least one well-designed controlled study without randomisation
IIb	Evidence obtained from at least one other type of well-designed quasi-experimental study
III	Evidence obtained from well-designed non-experimental descriptive studies, such as comparative studies, correlation studies and case studies
IV	Evidence obtained from expert committee reports or opinions and/or clinical experience of respected authorities

Grading of recommendations

(NICE, 2001)

Grade	Evidence
A	At least one randomised controlled trial as part of a body of literature of overall good quality and consistency addressing the specific recommendation (evidence levels Ia and Ib).
B	Well-conducted clinical studies but no randomised clinical trials on the topic of the recommendation (evidence levels IIa, IIb and III).
C	Expert committee reports or opinions and/or clinical experience of respected authorities (evidence level IV). This grading indicates that directly applicable studies of good quality are absent.
Good practice point (GPG)	Recommended good practice based on the clinical experience of the Guideline Development Group

Physiotherapy practitioners should use their physiotherapeutic knowledge and clinical judgement in applying the principles and recommendations of these guidelines to the management of individual patients.

Summary of recommendations

Recommendations for diagnosis / assessment

A discussion of the evidence is presented in the complete guidelines document.

History

This should specifically establish:

- The patient's age
 - SIS : This may occur at any age, but in patients under 35 years old is likely to be secondary to instability
 - PSGI & SLAP : For both, the mean age is approximately 35 years (range 18 -55)
 - Capsulitis: The usual age range is 40 -60 years.
- How the problem started
 - SIS: The onset may be sudden or insidious
 - PSGI: this is usually related to throwing or an analogous injury/activity
 - SLAP: SLAP lesions are usually attributable to specific, throwing-related incidents.
 - ACJ (acromio-clavicular joint) arthritis: Symptoms usually develop many years after an injury.
- The nature of the symptoms
 - Various symptoms, and their likely implications are presented in the following table.
- The intensity of the pain
 - Use a VAS (Visual Analogue Scale) or equivalent.

In the following tables '+' denotes a link between the sign and diagnosis.

Differential diagnosis: a summary of shoulder symptoms

Symptom:		Condition:					
		SIS	SIS secondary to instability	PSGI	SLAP	Capsulitis	ACJ arthritis
Pain	Shoulder/deltoid. May radiate into arm	+	+			+	
	Local to ACJ						+
	Posterior			+			
	Inside joint/vague				+		
	Sharp/catching	+	+				
	Aching	+				+	+
	At night	Possible: suggest cuff tear	Possible, but minor	Possible, but minor		Possible	
	Lying on affected side	Possible: suggests cuff tear				Possible	Possible
	Activity specific	+ Especially overhead work	+ As for SIS	+ Throwing or similar	+ Not consistent	Possible	+ Ache after general activity
Dead arm			Possible				
Heavy feeling			Possible				
Painful clicking			Possible		Possible		Possible
Creptus		Possible: suggests partial cuff tear?					Possible

Differential diagnosis: A summary of movement, impingement and instability tests

Sign:		Condition:					
		SIS	Instability	PSGI	SLAP	Capsulitis	ACJ arthritis
Painful active	Arc	Possible	Possible				Possible
	Elevation	Possible	Possible	+	+	+	Possible
	Medial rotation	Possible	Possible			+	Possible
	Lateral rotation		+ In the apprehension test position	+		+	Possible
	Horizontal adduction	Possible	As for SIS			N/a	+
Limitation of active	Elevation	Possible. In a cuff tear active elevation may not be achievable	Possible			+	
	Lateral rotation					+	
	Medial rotation	Possible	Possible			+	
Limitation of passive	Elevation	Possible	Possible			+	
	Lateral rotation					+	
	Medial rotation	Possible	Possible			+	
	Horizontal adduction	Possible	Possible			N/a	
Positive	Neer	+	Possible		Possible	N/a	N/a
	Hawkins-Kennedy	+	Possible		Possible	N/a	N/a
	Load and shift		Possible	Possible	Possible	N/a	
	Apprehension		Possible		Possible	N/a	N/a
	Relocation		+		Possible	N/a	N/a
	Sulcus test		Possible		Possible	N/a	N/a
	IRRSST (Internal rotation resistance strength test)		+	+	+	N/a	N/a

Recommendations for physiotherapy interventions in SIS, including SLAP lesions and PSGI.

Objective: Reduction of subacromial inflammation and pain management

Recommendation: Rest, avoidance of aggravating activities, and non-steroidal anti-inflammatory drugs (NSAIDs) Grade

- Initially, relative rest should be recommended: overhead or other aggravating activities should be avoided in particular. B
- Absolute rest should be avoided. C
- The benefits of a short (7-21 day) course of NSAIDs are likely to outweigh the risks. If such medication has not been prescribed, this option should be discussed with the appropriate medical practitioner. A

Recommendation: Cold therapy Grade

- Cold packs may be used to reduce the pain and inflammation of SIS, and to settle irritation post-exercise. C
- Cold packs should not be applied prior to exercise. B

Recommendation: Heat therapy Grade

- Due to insufficient evidence, no recommendation can be made. None

Recommendation: Pulsed Electromagnetic Fields (PEMF) Grade

- PEMF (applied for 30 minutes on 6 consecutive days) is beneficial in the treatment of calcific tendinitis, both short- and medium-term. Though it is associated with post-treatment soreness, this is only transitory. A

Recommendation: Ultrasound Grade

- In calcific tendinitis, high intensity (2.2 W/cm²), continuous ultrasound, applied daily for three weeks, then on alternate days for three weeks, gives short and medium-term benefit. A
- Except in calcific tendinitis, ultrasound is not recommended for SIS. A

Recommendation: Laser and Transcutaneous Electrical Nerve Stimulation (TENS) Grade

- Due to insufficient evidence, no recommendation can be made. None

Recommendation: Deep transverse friction massage (DTFM) Grade

- Due to insufficient evidence, no recommendation can be made. None

Recommendation: Steroid injection Grade

- Steroid injections benefit SIS in the short term. A
- In view of the associated risks, it is suggested that steroid injections be used only as needed to facilitate rehabilitation. Unless severe pain is present, a several-week trial of more conservative therapy should precede their use. C
- Resistive exercise should be withheld for 2 weeks following steroid injection. B
- The same subacromial space should not be injected on more than 3 occasions. C

Objective: Improvement of posture

Recommendation: Improvement of posture Grade

- An attempt to correct forward-head posture is appropriate, in view of its association with shoulder pain. B

Objective: Restoration of range, strength, stability and scapulohumeral rhythm

Recommendation: Restoration of range, strength, stability and scapulohumeral rhythm Grade

- Passive mobilisation of the upper quadrant, applied according to standard principles (Maitland, 1991), augments the beneficial effects of exercise. **A**
- A programme of exercises to restore range, strength, stability and scapulohumeral rhythm benefits SIS. A suggested 'core' set of exercises, derived from the strongest available evidence is described, illustrated and graded in the complete guideline document. They should all be painless. **A**
- Scapulohumeral and scapulothoracic rhythmic stabilisation training may be introduced from an early stage, utilising closed kinetic chain work in sitting, standing, in four-point kneeling, or using an exercise ball, such that control is achieved in progressively less stable positions. **C**
- Strengthening exercises may be introduced in the form of isotonic medial and lateral rotation of the shoulder, performed elbow-at-side (Morrison et al, 1997). Elastic resistance band may be used to provide light resistance. **B**
- Scapular stability when performing strengthening exercises is paramount. **C**
- Stretching exercises may also be introduced at an early stage. Strengthening exercises include anterior and posterior capsular stretch. **B**
- When muscular stability is improving, and as the shoulder becomes more comfortable, progression may be made to more vigorous strengthening exercises. A set of exercises, shown electromyographically to most efficiently activate the scapular and shoulder musculature, are illustrated in the complete guidelines document. **B**

The exercises described and illustrated in the complete guidelines may be copied for distribution to patients. It is recommended that the exercises are taught on a one-to-one basis, and appropriate text added to the illustrations to ensure the patient's full understanding. Numerous other exercises were identified in the literature and are summarised in the complete guideline.

References

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